L37 ANSWER 3 OF 5 USPATFULL

CLM What is claimed is:

. . . an N-acetylglucosamine compound, or a pharmaceutically acceptable salt or ester thereof, present in about 5 to 30 weight percent; an **ascorbic acid** compound, or a pharmaceutically acceptable salt or ester thereof, present in about 5 to 50 weight percent; at least two. . .

. . . to thicken the skin; a primary antioxidant component in an amount sufficient to substantially inhibit the activity of collagenase and **elastase**; at least one amino acid component in an amount sufficient to assist in the thickening of the skin; and at. . .

AB This application relates to a pharmaceutical composition for the prevention and treatment of skin conditions in a patient having a sugar compound that is converted to a glycosaminoglycan in the patient in an amount sufficient to thicken the skin, a primary antioxidant component in an amount sufficient to substantially inhibit the formation of collagenase and elastase, at least one amino acid component in an amount sufficient to assist in the thickening of the skin, and at least one transition metal component in an amount effective to bind collagen and elastic fibers and rebuild skin. In one preferred form, the composition further includes a catechin-based preparation, a glucosamine or a pharmaceutically acceptable salt or ester thereof, and a chondroitin or a pharmaceutically acceptable salt or ester thereof. In a more preferred form, the invention further includes a vitamin E source, a cysteine source, a vitamin B.sub.3 source, quercetin dihydrate, pyridoxal 5 phosphate-Co B.sub.6, a methionine source, and a vitamin A source. The invention further relates to a method for the prevention or treatment of skin conditions by administering the pharmaceutical composition in an amount therapeutically effective to modify the thickness of the skin to prevent or treat at least one skin condition.

1. An orally administered pharmaceutical composition for the prevention and treatment of skin conditions in a patient comprising the following components: a sugar compound that is converted to a glycosaminoglycan in the patient in an amount sufficient to thicken the skin; a primary antioxidant component in an amount sufficient to substantially inhibit the activity of collagenase and elastase; at least one amino acid component in an amount sufficient to assist in the thickening of the skin; at least one transition metal component in an amount effective to bind collagen and elastic fibers and thicken skin; and a catechin-based component present in an amount sufficient to inhibit the presence of anti-collagen enzyme in the skin.

2. The pharmaceutical composition of claim 1, wherein the sugar compound is present in about 5 to 50 weight percent, the primary antioxidant component is present in about 5 to 50 weight percent, the amino acid component is present in about 8 to 60 weight percent, and the transition metal component is present in about 0.5 to 15 weight percent of the composition.

3. The pharmaceutical composition of claim 1, wherein the sugar compound comprises an N-acetylglucosamine compound or salt or ester thereof, the primary antioxidant component comprises ascorbic acid compound or salt or ester thereof, at least two amino acids selected from the group

consisting of proline, lysine, cysteine, and methionine are present, and at least two the transition metal components comprising zinc, manganese or copper, or mixtures thereof, are present.

4. The pharmaceutical composition of claim 3, wherein at least three transition metal components are present, one of which is zinc monomethionine, one of which is manganese ascorbate, and one of which is copper sebacate, wherein the zinc is present in about 10 to 30 weight percent of the complex and the manganese is present in about 5 to 20 weight percent of the complex, and the copper is present in about 5 to 20 weight percent of the complex.

5. The pharmaceutical composition of claim 3, wherein the N-acetylglucosamine is present in about 5 to 30 weight percent, the ascorbic acid is present in about 5 to 50 weight percent, the amino acid component comprises lysine and proline, wherein each is present in about 4 to 25 weight percent, and the zinc monomethionine and the manganese ascorbate are each present in about 1 to 10 weight percent and the copper sebacate is present in about 0.1 to 5 weight percent of the composition.

6. The pharmaceutical composition of claim 1, wherein the composition further comprises a pharmaceutically acceptable carrier or excipient.

7. The pharmaceutical composition of claim 1, further comprising a catechin-based preparation, a glucosamine or a pharmaceutically acceptable salt or ester thereof, and a chondroitin or a pharmaceutically acceptable salt or ester thereof.

8. The pharmaceutical composition of claim 7, wherein the catechin-based preparation is a proanthanol or proanthocyanidin, and the glucosamine and chondroitin are each a sulfate or succinate.

9. The pharmaceutical composition of claim 8, wherein the proanthocyanidin is grape seed extract present in about 0.5 to 5 weight percent, the glucosamine is D-glucosamine sulfate present in about 3 to 17 weight percent, wherein the glucosamine is about 60 to 90 weight percent of the salt, and the chondroitin is chondroitin sulfate present in about 3 to 17 weight percent of the composition, wherein the chondroitin is preferably present as about 65 to 95 weight percent of the salt.

10. The pharmaceutical composition of claim 7, further comprising a vitamin E source, a cysteine source, a vitamin B.sub.3 source, quercetin dihydrate, pyridoxal 5 phosphate-Co B.sub.6, a methionine source, and a vitamin A source.

11. The pharmaceutical composition of claim 10, wherein the vitamin E is D-alpha tocopheryl acid succinate present in about 1 to 15 weight percent, the vitamin B.sub.3 is niacinamide present in about 0.5 to 15 weight percent, the vitamin A is vitamin A palmitate present in about 0.1 to 5 weight percent, the cysteine is N-acetyl cysteine present in about 1 to 10 weight percent, the methionine is preferably

L-selenomethionine present in about 0.1 to 5 weight percent, the quercetin dihydrate is present in about 0.5 to 15 weight percent, and the pyridoxal 5 phosphate-Co B.sub.6 is present in about 0.1 to 5 weight percent of the composition.

12. An orally administered pharmaceutical composition for the prevention and treatment of skin conditions in a patient comprising: an N-acetylglucosamine compound, or a pharmaceutically acceptable salt or ester thereof, present in about 5 to 30 weight percent; an **ascorbic acid** compound, or a pharmaceutically acceptable salt or ester thereof, present in about 5 to 50 weight percent; at least two different amino acid compounds wherein at least one amino acid compound is proline, lysine, cysteine, or methionine and each amino acid is present in about 4 to 25 weight percent; and at least one transition metal component wherein at least one transition metal compound is zinc, manganese, or copper, or mixtures thereof, present in about 0.5 to 15 weight percent to thicken skin.

13. A method for the prevention or treatment of skin conditions, wherein the skin has a thickness of dermis and collagen, which comprises orally administering to a patient a pharmaceutical composition comprising: a sugar compound that is converted to a glycosaminoglycan in the patient in an amount sufficient to thicken the skin; a primary antioxidant component in an amount sufficient to substantially inhibit the activity of collagenase and **elastase**; at least one amino acid component in an amount sufficient to assist in the thickening of the skin; and at least one transition metal component in an amount effective to bind collagen and elastic fibers and thicken skin, said composition administered in an amount therapeutically effective to modify the thickness of the skin to prevent or treat at least one skin condition.

14. The method of claim 13, wherein the skin condition prevented or treated is at least one of wrinkles or the appearance thereof, fine lines or the appearance thereof, thinning, reduced skin elasticity, reduced skin moisture, spider veins, senile purpura, sun damaged skin, aging skin or rough skin.

15. The method of claim 12, wherein the composition is administered as a tablet or capsule having about 1 mg to 2,000 mg of composition.

16. The method of claim 14, wherein the tablet or capsule has about 200 mg to 1,600 mg of composition.

17. The method of claim 15, wherein the tablet or capsule has about 600 mg to 1,000 mg of composition.

18. The method of claim 13, wherein the composition is administered in conjunction with concurrent or subsequent treatment by at least one additional pharmaceutical composition for the prevention or treatment of a skin condition.

19. The method of claim 13, further comprising providing a catechin-based component present in an amount sufficient to inhibit the presence of an anti-collagen enzyme in the skin.

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INVENTOR(S): Murad, Howard, 4316 Marina City Dr., Marina del Rey, CA, United States 90292

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